

OF
THE CHOLERA.

THE chief symptoms in this disease are a vomiting and purging concurring together, or frequently alternating with one another. And the evacuations both upwards and downwards are manifestly mixed with bile.

From this last circumstance the disease appears to depend upon an increased secretion of bile, and its copious effusion into the alimentary canal.

This effusion of bile irritates, and excites the motions abovementioned.

When the disease begins with violence the spasmodic contractions of the intestines are soon communicated to the abdominal muscles, and very frequently to those of the limbs. In this manner the disease frequently increases rapidly in violence, till the strength of the patient is greatly and often suddenly exhausted, while a coldness of the extremities, cold sweats, and faintings coming on, an end is put to the patient's life, sometimes in the course of one day.

In other cases the disease is less violent, continues for a day or two, and then ceases by degrees; though such recoveries seldom happen without the assistance of remedies.

In many cases of young children a diarrhœa returns after the vomiting has ceased, and after continuing to harass the patient for many weeks, proves fatal.

The attack of this disease is not preceded or accompanied with febrile symptoms, and though during its course, both the pulse and respiration are frequent and irregular, yet these symptoms are generally so en

removed by the remedies that relieve the spasmodic affections peculiar to the disease, as to leave no ground for supposing that it had been accompanied by, or was connected with that assemblage of symptoms which designate fever.

Dr. Sydenham considered the appearances of the Cholera in England to be confined to the month of August, and observes, that in proportion to the heat of the air, the violence of the disease was greater.

In Philadelphia it is most prevalent in the month of July, but cases frequently occur in June and August.

From these circumstances, and from the facts stated by Tropical writers, it appears evident that this disease is the effect of a warmer atmosphere inducing a deficiency of vigour in the several functions of the human body, and especially in the functions of the liver, in consequence of which, a preternatural secretion and excretion of bile is readily induced by the remote causes.

The chief of the remote causes of this disease appears to be a sudden change in the temperature of the atmosphere, for it is always most prevalent, when after extreme hot and dry weather, a fall of rain has cooled the atmosphere.

In some cases after the heat of the season has given the predisposition, the disease is induced by eating too freely of crude vegetables, and such substances as are of difficult digestion.

Emetics of the drastic kind are very apt to induce this disease when employed during the hot season.

Though the effusion of bile into the alimentary canal generally gives rise to the disease at first, it often continues after the bile is completely evacuated, owing to the debility and exquisite irritability, first induced by its irritation. This is similar to what happens after taking an over dose of Tartar emetic; the vomiting often continuing after every particle of the emetic which first excited it, has been evacuated.

The pores of the skin being relaxed and enlarged by the summers' heat, and accommodated to the increased quantity of perspirable matter, which is determined thither and exhaled, any plethora occasioned
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by a diminution, or suppression of that discharge, must load those Viscera in the abdomen whose ordinary secretions are most languid at that time. The consequence of this dertermination is, a distention of the vessels of the abdominal viscera, and of course irritation and pain, and this irritation and pain, occasion an increase of the internal secretion, and among the rest, that of the bile.—

The bile, and the pancreatic fluid, as well as the gastric fluid, appear to be more acrid in this disease than in a state of health, at least experiments prove this to be the case with the gastric fluid; hence the application of these, or of any other acrid substance to the debilitated and irritable fibres of the stomach and intestines, occasion those enormous and irregular motions in their fibres, which have been described.

These contractions sometimes exhibit an appearance of increased power, as well as of action, but this appearance is falacious, otherwise sedative or debilitating and not stimulating remedies would afford relief.

R E M E D I E S.

IN every case of Cholera, the bilious and other acrid matters should be immediately diluted, and carried off by large and frequent draughts of camomile tea or warm water, and where the patient will submit to them by injections of the same.

So soon as this is accomplished, or sooner, if the spasms have begun to affect the limbs, recourse should be had to the internal use of opium, which should be administered in a liquid form by the mouth, if the stomach will retain it. To an adult, thirty drops should be given in a table spoonfull of simple peppermint, or cinnamon water, and repeated every hour if retained on the stomach, till the evacuations and spasms cease, but if rejected, it should be repeated immediately, after every evacuation. The laudanum should be proportioned to the patients age and vigor; to a child from one month to a year, from one to six drops will be proper.

To render the laudanum more certainly effectual: every means should be employed to restore the determination
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to the surface. For this purpose, when practicable, the patient should be immersed in the warm bath, but where that is impracticable, flannel clothes wrung out of hot water should be applied to his stomach, abdomen and limbs, as hot as he can conveniently bear, and the application of these flannel cloths should be repeated as often as they become cool.

These failing, from eighty to an hundred drops of Laudanum should be thrown up the bowels, in a glister of chicken broth, rice gruel, or camomile, and fennel-seed tea, or any other simple liquid, moderately warm; and should be repeated every two hours, or after every evacuation, till the symptoms cease.

If the disease should continue, notwithstanding the judicious application of the remedies which have been directed; Blistering plasters, or sinapisms should be applied to the stomach and inside of the legs, and the whole of the spine rubbed with mustard, mixed with the spirits of sal vol. ammon. or a mixture of the oil of cloves and volatile spirits; and the patient should lie between heated blankets, the doors and windows of his chamber being open, for the benefit of pure air.

When the stomach rejects opium in a liquid form, one grain of solid opium may be administered every hour, or after every evacuation, to an adult; and a proportionable quantity, with any agreeable preserve and aromatic tea to an infant.

In some cases double flannel cloths sprinkled with warm spiced brandy, or a mixture of oil of cloves, volatile spirits and brandy, applied to the stomach and bowels, and a common heated flat or smoothing iron passed over the flannels have afforded speedy relief.

In some cases also, æther exhibited in doses of thirty or forty drops in any simple herb' tea, and frequently repeated, has also succeeded when opium has failed.

This disease is very liable to return the day following, unless prevented by having recourse to preventives: I therefore make it a rule to exhibit ten or fifteen drops of laud. liquid in some agreeable draughts every twelve hours, for three or four days after the evacuations have ceased.

At the same time the patient should take a decoction or infusion of Columbo root, with the addition of a few drops of lavender compound, or a little old brandy four or five times a day, to restore strength and ease to the stomach and intestines.

The lightest and most grateful food, should be taken in a small quantity, at a time.

In general, adult patients soon recover perfectly from this disease, if managed agreeably to the preceeding directions ; but in infants and young children, the diarrhœa, with occasional vomiting, is very apt to continue obitinate for a great length of time, and in general, proves more fatal to them, than any other disease to which they are liable.

The bilious diarrhœa of children, shall therefore be the subject of the next chapter.

Of the Bilious Diarrhœa of INFANTS, and young CHILDREN.

THIS disease is much more prevalent in populous cities, than in villages or farm houses of America, and like the Cholera, of which it is frequently the consequence, is confined to the summer and autumnal seasons. It is most frequent and violent, during those seasons immediately after a sudden change of the wind, to a colder quarter, and especially after rain, which gives a sudden coolness to the air. This disease is confined principally to infants at the breast, and those under two years of age : it seldom occurs violently, or proves fatal, after this tender age.

In Philadelphia, more children are annually destroyed by this disease, than by all the others to which they subject.

This disease either returns after the suspension of the Cholera, or comes on suddenly after exposure to cold,
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generally in the night, and is distinguished from common diarrhœa, by the severity of the griping, and the bilious coloured stools, accompanied with a frequent inclination to puke, particularly a little before the patient has an evacuation by stool, or at the time of such evacuation.

It may also be distinguished from the Diarrhœa arising from teething by the pulse, condition of the skin, the strength of the patient, and the aspect of his countenance. In the latter, these differ very little from their natural state, for several days after the commencement of the disease, whereas in the bilious Diarrhœa, the debility in most cases, is evident from the commencement. The pulse is weak, low, quick and soft, the skin pale, cold and dry, or cold and moist, especially on the limbs—the eyes dull, and the countenance contracted, depressed and listless.

The internal heat and thirst are great—the flesh grows daily more relaxed, soft and emaciated, the thirst increases, the appetite fails; every kind of food is loathed and refused; no drink but cold water acceptable, and that thrown up soon after it is taken. In the progress of the disease, all the enumerated symptoms increase, in some gradually, in others more rapidly. In the worst and most obstinate cases, unless early relieved, the stools become daily more copious, though not always more frequent, and have a cadaverous scent, the debility increases, every thing taken into the stomach passes through the bowels undigested or but little altered from its natural state; the thirst becomes insatiable, the feet swell and become œdematous, the belly swells and grows hard, the mouth becomes affected with superficial white eruptions and ulcerations, which impedes the swallowing; a lethargy ensues, the skin appears livid, and often spotted, and the patient dies.

The duration, as well as violence of this disease, is very various, some recovering in three or four days, others lingering for as many months, and recovering after being reduced to perfect skeletons; some die before the end of the first week, others after lingering six or seven, and some still longer.

As this disease depends upon similar causes, only operating in a less degree, as the Cholera, that is upon too great a determination to the liver and intestines, and a want of tone in the extreme vessels, on the external surface of the body, and a general state of debility in the circulating organs, and is occasioned by the application of debilitating powers; it is obvious that the indications of cure, and the remedies employed, should be the same as those employed in the cure of Cholera, only differing in degree, or the proportion in which they are applied, at a time when the patient is in an imperfect state of vigour.

An increased peristaltic motion of the intestines, may be considered as always the chief part in the proximate cause of diarrhoea, and the disease, is diversified by the different causes which produce this increased motion.

But in the species under consideration, viz. that in which bile predominates in the evacuations, the increased peristaltic motion is occasioned and continued by the bile, effused into, and irritating the intestines.

THE INDICATIONS OF CURE

are, therefore to evacuate the bile already effused, and to prevent its excessive effusion in future.

To effect these purposes, I have found the following treatment preferable to any other.

℞ Pulv. Rhubarb ℥i. Magnesia Alb. ʒi.
Ol: Minth Piper: vel Cinnam. gut i.
Aq: Com: ʒii. m.

Two or three tea spoonfuls of this composition, is to be given every hour till it alters the colour of the stools, and from ten to forty drops of the common parigoric elixir called Tinct. Opii Camphorat. in sweetened water, at bed time.

The day following I direct from one to four tea spoonfuls of the following mixture according to the age
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and strength of the patient, to be given every third or fourth hour

* ℞: Cret: pp. ʒiss. Pulv. Gum Arab. ʒss.
 Ol: Minth pip. vel Cinnamon gut i.
 Sach. Alb. ʒss. Aq. Com. ʒij. m. et
 Add. Tinct. Opii. gut. n° 8. Spr. Sal. Vol.
 Alk. gut. xvi. m.

If the diarrrhœa becomes suspended by these means, mild tonics should be administered to prevent its return. For this purpose the Columbo root, either in substance or infusion, is in high estimation, and is generally found to rest better on the patients stomach, than

* In cases where acidity abounds ʒi of calcined magnesia should be substituted in the place of prepared chalk. And when the griping is severe, and not attended with hot skin, tense pulse, or other symptoms of inflammatory fever, I have found the following formula more generally successful than any other.

℞: Magnesiæ Calcinat. ʒi
 Pulv: Rhubarb gr. x. vel xv.
 Sach. Alb. ʒij—Cl. Minth piper
 vel Cinnam. gut i. vel ij.

These are to be rubbed together in a mortar, and two ounces of water, with from fifteen to twenty-five drops of liquid laudanum, are to be added and mixed together.

To an infant under twelve months old, two tea spoonfuls of the mixture may be given three times a-day, and twice as much to one from one to two years old.

If the child cannot retain this mixture on its stomach, the same articles may be well triturated in a mortar, and the liquor strained and pressed through a linen cloth, and the strained liquor given. Any pleasant tea or mild aromatic infusion, may be given after the medicine.

Children are always thirsty when debilitated with this disease, and as they are apt to drink more than their stomachs can bear, they generally puke up part of what they drink.—To prevent this effect, they should be restrained to a small quantity at a time, and not suffered to take their drink very cold. Water with a piece of bread or biscuit toasted brown, infused in it, given in small draughts is not only grateful, but generally rests easy on the stomach.

After the diarrrhœa, sickness, and griping are relieved, a composition of Thereac Vient. ʒij Pulv. opii ʒi Camphor ʒi well mixed and spread on leather, applied to the stomach, has frequently appeared to prevent a relapse.

Ol. Menth. and Caryophil, have also been employed with success without the opium.

the Peruvian bark. From five to ten grains of the powder mixed with a draught of simple peppermint water, or cinnamon water may be given to an infant at the breast, and repeated four or five times a-day.

If the child refuses to take it in powder, it may either be triturated with water in a mortar and strained through linen, or $\mathfrak{z}\text{ij}$ of the bruised root may be infused in eight ounces of boiling water, and from $\mathfrak{z}\text{ij}$ to $\mathfrak{z}\text{fs}$ of the strained liquor may be taken several times in the course of a day.

When the Columbo can not be exhibited, or if it fails of success—The compound tincture of the bark, or the tincture of gum kino may be substituted, and a little of the common chalk julep, rendered cordial with volatile spirits, peppermint and laudanum, occasionally interposed.

When the debility is great, laudanum should always be given in very small doses, and at considerable intervals. From neglecting this circumstance, numbers have been rendered worse instead of better by its use.

To render the recited remedies more effectual, the warm bath either general or partial, should be employed, and the patient's stomach and abdomen rubbed with spiced-brandy, or a composition consisting of
 Sp: Vin. Gallic $\mathfrak{t}\text{ss}$ Sp: Sal Vol. Alk. $\mathfrak{z}\text{ii}$ Ol. Caryoph: $\mathfrak{z}\text{ij}$ two or three times a-day, and afterwards covered with soft flannel or muslin, so long as the diarrhoea continues, and the child's strength appears to decline.

When the child's countenance appears pale, shrunk and depressed, resembling one extremely fatigued, a declension of strength is always indicated. If to these circumstances, the stools are copious, watery and green, preceded by restlessness, tossing of the limbs, rolling the head, and retching to puke, the case is dangerous and alarming. Under these circumstances two or three drops of laudanum should be added to every dose of the chalk julep, with a due proportion of Volatile aromatic spirits, or essential oil, and given every hour till it affords evident relief, and afterwards once in six or eight hours till all danger of a return ceases,

which will generally be the case before the end of the third day. The patient should then be removed out of the hot and impure air of the city, till the season becomes cooler.—Unless this is complied with, a relapse is always to be apprehended, so long as the causes which originally produced the disease, continue to exist.

In short, we might with as much reason expect to cure inflamed eyes occasioned by a smoky room, without a change of circumstances, or situation, as to cure the bilious diarrhoea, so long as the heat and impurity of the air, which gave origin to the disease continue to operate.

In cases where great debility or prostration of strength is evident, and the little sufferer tosses his limbs and heaves backwards and forwards, and retches to puke before every stool, which is generally watery, curdly, and of a greenish colour: I have seen immediate benefit produced by small glisters of tepid warmth, made by infusing camomile flowers and cardamom seeds, or annis seeds in boiling water. In these circumstances during the intermissions from griping, the child should take a tea spoonful or two of the following mixture every hour till easy, and afterwards, once in four or six hours as circumstances may require.

℞: Magnes: Calcinat. ℥ij.

Gum Arab. ℥i. aqu: com. ℥i. cui.

Add. vel. menth. vel. cinnam. gut i. sp.

Sal. Vol. Alk. gut xvi. tinct. theb. gut. vi.

When the debility is great, and the acid in the primæ viæ copious, calcined magnesia, or lime water is preferable to chalk, occul. canceror. bol. arm. or any of the common absorbent earths, because they are freed from the carbonic acid with which the others are combined.

The usual dose of aq. calcis for an infant, is from one to four drachms, diluted with common water.

When the debility increases, accompanied with insatiable thirst, wine whey, or thin milk punch should be given frequently in small draughts. The stomach and bowels should be rubbed at the same time with warm camphorated spirits and laudanum, or the volatile lini-
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ment, and covered with flannel; and if the nights and mornings are considerably cooler than the rest of the day, which is generally the case after the middle of August, worsted stockings or a flannel petticoat long enough to cover the feet, should be worn constantly. Small blistering plasters applied to the limbs, and repeated occasionally, frequently afford relief, not only to the fever, but to the diarrhoea.

As soon as the diarrhoea and thirst cease, the cold bath, either by way of shower or immersion, should be employed regularly once a-day at least.

When the bath can not be conveniently applied in either of the ways just mentioned, the whole body may be washed by means of a thick linen cloth, dipt in cold water and brandy, and wiped dry after each washing with a warm napkin; this occasions a glow on the surface, and in some measure, supplies the place of exercise.

By the use of the bath, a proper regulation of diet, and frequent exercise in the open air, a relapse may be generally prevented during the extreme heats of July and August; but for farther security, as the season advances, and the nights and mornings become cold, while the middle of the days continue distressingly hot, it will be proper to let the infant wear a flannel shirt, as well as a long flannel petticoat or worsted stockings. Flannel from its texture repels moisture, and has the property of retaining heat, whereas linen being smooth and compact, suffers it to escape immediately: hence flannel cloathing preserves the warmth on the surface, and thereby prevents morbid determination to the internal viscera.

Cases of diarrhoea often occur during the hot season, that are not bilious, particularly in June and July. In these cases, the alvine evacuations are generally mixed with more or less mucus; the griping, though more severe is attended with less sickness, and less thirst, and the countenance is always more animated, and the functions in general more vigorous.—Children whose gums are inflamed by teething, are most frequently affected with a diarrhoea of this kind; and my observations give me reason to believe, that the effects of teething, instead
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of being the cause of the bilious diarrhœa, is always a preventative, except the inflammation which the irritation of the teeth occasion, before they pass through the gum be so great as to bring on indirect debility.

When therefore the gums begin to appear swelled and red in cases of bilious diarrhœa, it may be considered a favourable circumstance.—From this circumstance it is very probable, that mercurial frictions would be beneficial in cases of bilious diarrhœa, by inducing a similar swelling and inflammation, and a general phlogistic diathesis.

To promote the cure of the diarrhœa mucosa which if not caused, is often aggravated by the irritation and pain of teething; those parts of the gums where the teeth are ready to protrude, should be cut across with a scalpel sufficiently deep to prevent any farther irritation from the edge of the tooth.

The irritation and pain occasioned by teething, generally renders the stomach liable to be disordered by every thing the infant takes. When this state of the stomach is attended with thin watery stools, and no fever, laudanum proportioned to the age of the patient is the most certain remedy; but when frequent inclination to puke is accompanied, or followed by mucous stools, and symptoms of more or less fever, I have observed the following method of treatment to be the most efficacious.

℞: Magnesiæ: Alb: ʒi.

Sal. glaub: epsom vel Rochel: Div.

Sach. alb. ʒij. Pulv. Gum Arab. ʒi.

Ol. menth. pip. vel. Cinnam. gut i.

Aq. Commun: ʒij. M.

From two to four tea spoonfuls may be given every two hours, till it occasions copious and liquid stools.

At night from two to six drops of the tincture of opium, commonly called liquid laudanum, should be given at bed time, in any thing agreeable.

If the stools appear to be mixed with mucus, or if the patient is troubled with tenesmus, the same medicines are to be repeated every day in the same manner, or at longer intervals, till they afford relief.

If the diarrhoea should become liquid, or watery, and not accompanied with symptoms of inflammatory fever, the following laxative absorbent mixture, is the best remedy that I am acquainted with.

℞ : Magnesiæ Alb. ʒi.

Pulv. Rubarb gr. xii. Sach alb. ʒij.

Ol : Menth piper, vel. Cinnam. gut. j.

Aq : font. ʒi. M.

When this medicine is intended to carry off acrid, or irritating matter from the intestines, two, three, or four tea spoonfuls, more or less, adapted to the age of the infant, should be given every hour, till a change in the colour of the stools, render its operation evident. The operation may be promoted, by a simple decoction of bread and water, made palatable with sugar ; by sago gruel, or fowl broth, &c. The breast may also be allowed. An anodyne at night, suited to the age and strength of the little patient is generally found necessary to procure tranquil and refreshing sleep, unless the complaint be attended with fever of an inflammatory kind.

When the medicine is intended to correct acidity, calcined magnesia is preferable to the common kind, and may be employed in the same quantity and manner, and when the griping is severe, from half a drop to three drops of tinct. opii. may be added to each dose of the mixture, and given every hour till that symptom is relieved, and afterwards three times a-day till the evacuations are suppressed. When this is accomplished, tone may be restored to the stomach, intestines, and the whole system by the use of tonics, combined with laudanum, and given in proper doses, and at proper intervals.

℞ Tinct. Kino. ʒiiij. vel Tinct. Cort. Peru. Comp. ʒvi.

Tinct. Opii gut iv. vel vi.

Aq. font. ʒi.

Or,

℞ Pulv. Alumen.

Coccinel an : gr. viij.

Tinct. Opii gut iv. vel vi.

Sach. Alb. ʒi Tr. Lav. comp. ʒi

Aq. Com. ʒi M.

A small tea spoonful or two of either of the above, according to the age and strength of the patient, should be given three or four times a-day.

Wine whey or brandy and water made weak, and sweetened with loaf sugar to be given in the intervals. In aid of these, great advantage may be derived from a proper regulation of the patient's diet, clothing, and exercise in the open air, and from the daily use of the cold bath, when the strength will admit of it with safety.

When the debility and emaciated condition of the patient has rendered the cold bath unsafe, the hot bath has frequently been observed to turn the tide of the disease.

My experience does not enable me to determine precisely the degree of heat which renders the bath most salutary, but as all degrees below 96, decrease the strength and fulness of the pulse; if the experiments of * Dr. Macard of Hanover are correct, it ought not to be much below that point. Pain of almost every kind and degree, is mitigated by the application of warm water to the part, and even in internal pains; this effect is produced by sympathy, when the warm bath is externally employed, even if it be only to the feet.

Dr. Darwin considers a bath of 96 or 98° a salutary stimulus, which supplies heat rather than produces it, and rather fills the system by increased absorption, than empties it by increased secretion; and may hence be employed with advantage in almost all cases of debility with cold extremities, perhaps even in anasarca, and at the approach of death in fevers.

Removal to the high grounds of the country before the extreme heat commences, is the best preservative against the diarrhoea of children, and after the disease has taken place, removal to the country is the most certain means of preventing it from proving mortal.

* See his Observations in the Analytic Review for 1797.